PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

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BRITISH
COLUMBIA

# A Reconnaissance Survey Of Chuyazega Lake

M. J. Hunter
March 1997

PWFWCP Report No. 170

The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

**Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9**

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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105-02085/

# A RECONNAISSANCE SURVEY OF

# CHUYAZEGA LAKE

| | |
|---|---|
| **WATERSHED:** | **Parsnip River** |
| **DATE OF SURVEY:** | **October 16 -17,1996** |
| **FIELD CREW LEADER:** | **Mark Hunter** |
| **FIELD ASSISTANT:** | **Karin Mathias** |
| **REPORT PREPARED BY:** | **Mark Hunter** |

**BRITISH COLUMBIA CONSERVATION FOUNDATION**

**PEACE / WILLISTON FISH AND WILDLIFE COMPENSATION PROGRAM**

**B. C. MINISTRY OF ENVIRONMENT, LANDS AND PARKS**

**FUNDED BY: FOREST RENEWAL BRITISH COLUMBIA**

**RELEASED BY:** _____

**D. J. Cadden, Regional Fisheries Biologist**

**LAKE:** Chuyazega Lake **SYSTEM NAME:** Parsnip River

**A.S.A.P. REFERENCE NO.:** **WATERSHED CODES: 236-2201-223-155**

**DATA ON FILE FOR THIS SURVEY**

| | | | |
|---|---|---|---|
| Location | X | Dissolved 02 / Temp. Profiles | X |
| Physical Data | X | Winter Dissolved 02 / Temp. Profiles | -- |
| Bench Mark | X | Netting Record | X |
| Terrain Features | X | Lake Catch Summary | X |
| Access | X | Individual Fish Data | X |
| Resorts and Campsites | X | Fish Preserved | -- |
| Other Developments | X | Stomach Analysis | X |
| Obstructions and Pollutions | X | Scale Reading | X |
| Special Restrictions | X | Location of Inventory Sites | X |
| Aquatic Plants | X | Photograph Directory | X |
| Wildlife Observations | X | Appendices | |
| Miscellaneous Comments | X | A: Water Chemistry Analysis | X |
| Lake Drainage | X | B: Tributary Stream Data | X |
| Fisheries Management Comments | X | C: Fish Scale Analysis | X |
| History of Previous Surveys | X | Bathymetric Map Reduction | X |
| Water Chemistry Summary | X | Bathymetric Map | X |

**LOCATION**

| | | | |
|---|---|---|---|
| Location: | approximately 57 k m southeast of Mackenzie | | |
| Elevation: | 775 m ± 30 m | U.T.M.: | 10.529398.6086652 |
| Latitude / Longitude: | 54°55'34" 122°32'29" | N.T.S. Map No.: | 93 - J / 15 |
| Management Unit: | 7-23 | Biogeoclimatic Zone: | Sub-Boreal Spruce |
| Ecoprovince: | Sub-Boreal Interior | Ecoregion: | Fraser Basin |
| Ecosection: | McGregor Plateau | | |

Drainage: Unnamed C. --> Chuyazega C. --> Reynolds C. --> Parsnip R. --> Williston Reservoir (Parsnip Reach) --> Peace R.

**XPHYSICAL DATA**

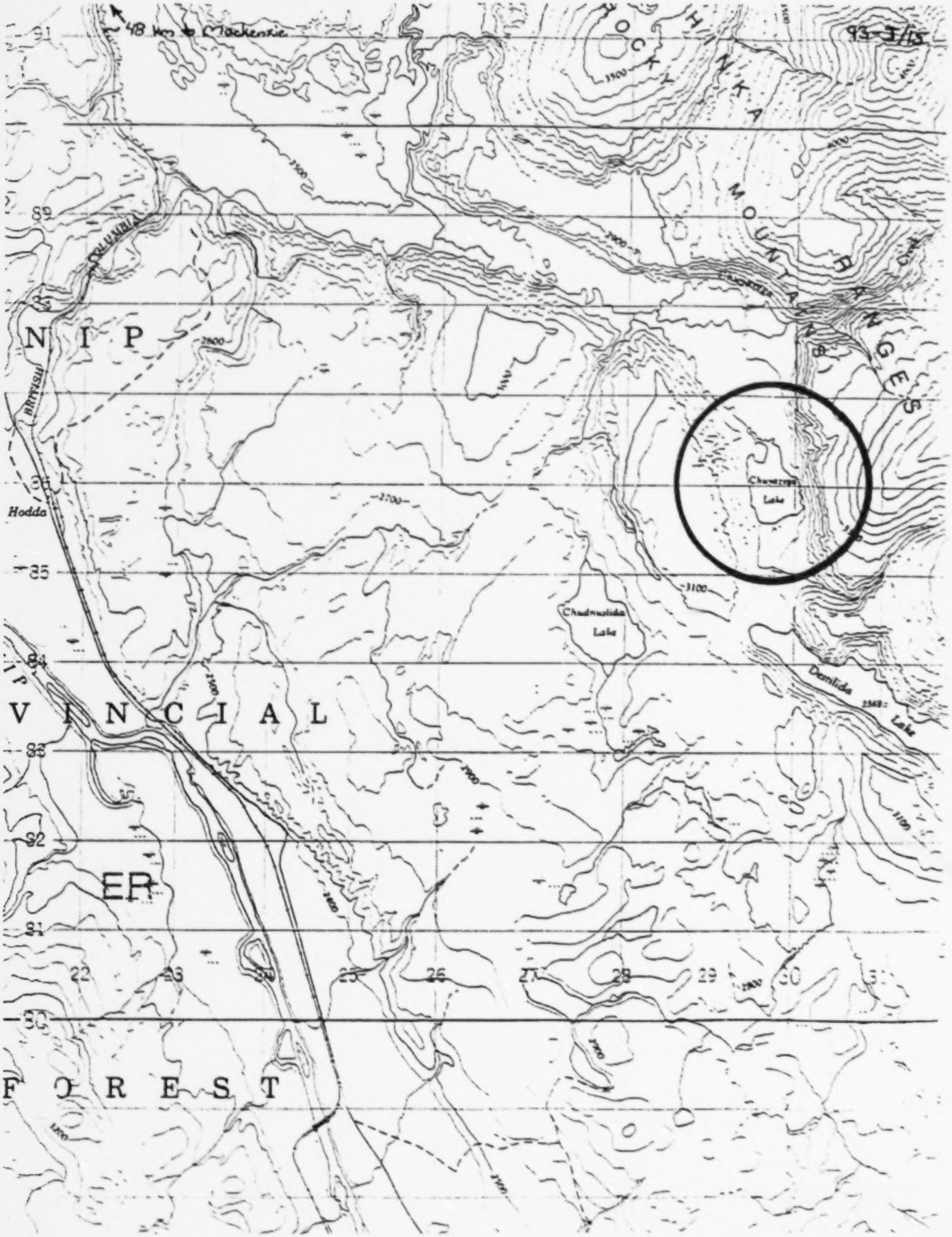
| | | | |
|---|---|---|---|
| Lake Drainage Area: | 11.5 $km^2$ | Volume: | 590 685$m^3$ |
| Water Surface Area: | 323 110$m^2$ | Perimeter of Islands: | 0 m |
| Area Above 6 m Contour: | 323 110$m^2$ | Number of Islands: | 0 |
| Shoreline Perimeter: | 2 868 m | Mean Depth: | 1.8 m |
| Maximum Depth: | 3.6 m | Secchi Reading: | 3.35 m |
| Filterable Residue (TDS): | 30 mg/L | | |

Sounding Device: Lowrance X- 15 Elevation Source: Contour Interpolation

**BENCHMARK**

(Iron spike, center of red circle) located 2.0 m above present water level in a 35 cm diameter spruce tree that is 7.0 m from the present water's edge and located on the northeast shore approximately 120 m south of Inlet # 1 (Plate # 4).

High Water Mark: 0.15 m above water level at time of survey


48 km to Mackenzie
93-J/15
ROCKY MOUNTAIN RANGES
N I P
V I N C I A L
F O R E S T
ER
Hodda
Chedmuslida Lake
Dennida Lake
Chedmuslida Lake
3100
3000
2900
2800
2700
2600
2500
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100

**LAKE: Chuyazega Lake**

## TERRAIN FEATURES

### Immediate Shoreline:

The north end of Chuyazega Lake is dominated by a marsh of common red sphagnum moss and sedge grasses with some spruce trees growing behind on very low slopes. The northeast side of the lake is fronted by a growth of sedge grasses and alders with fir and spruce trees growing behind on low slopes. The southeast and west sides of the lake are fronted by a growth of sedge grasses and alders with birch trees and some fir and spruce trees growing behind on moderately steep slopes. The south end of Chuyazega Lake is fronted by a marsh of common red sphagnum moss, sedge grasses and alders, with spruce trees growing behind on low slopes.

The shoreline substrate along the east and west side of the lake is composed of fines and silts over gravels. Along the north and south sides of the lake, the shoreline substrate is composed of silts and organics. There is a straight drop off from the edge of the marsh to the lake's bottom along the north and south sides of Chuyazega Lake, and along the northeast side of the lake. The lake's bottom then proceeds to drop off slowly towards the center of the lake. Along the southeast and west side of the lake, the bottom has a moderately steep slope as it drops off towards the center of the lake.

There is some large woody debris located along the southeast, south and west sides of Chuyazega Lake. As well, there is one beaver hut located on the southeast side of the lake (Plate # 5), and two more located in the northwest corner of the lake.

### Surrounding Country:

Steep rolling hills covered in a young forest of paper birch, with some spruce and fir trees intermixed, lie to the east and west of Chuyazega Lake. To the south, there are low wetlands covered in a mature forest of spruce trees. To the north of Chuyazega Lake, there is a large marsh of common red sphagnum and sedge grasses with some spruce trees growing in clumps. Chuyazega Creek is located approximately 1.5 km north of the lake. Chuyazega Lake is situated within the Sub-Boreal Spruce biogeoclimatic zone.

**LAKE: Chuyazega Lake**

## ACCESS

**Directions:**

From the community of Bear Lake, travel north on Highway 97 for approximately 16 km, then turn right on to the 2000 Forest Service Road. Drive for approximately 6 km on the 2000 Road, and continue on the 800 Road for approximately 43 km. Turn right on to a logging road, and drive for approximately 6 km to a clear cut located on the north side of Chudnuslida Lake. The total distance from Bear Lake to Chudnuslida Lake is approximately 71 km. Chuyazega Lake is approximately a 2 km helicopter ride to the northeast from this staging site.

**Road Type and Conditions:**

Highway 97 is a well-maintained, two lane provincial highway that is easily traveled with all vehicle types. The 2000 Road and the 800 Road are both well-maintained, two lane gravel logging roads that can be easily traveled during the summer months with a two-wheel drive vehicle. The logging road that leads into Chudnuslida Lake is a rough one lane gravel road that can be traveled with a two-wheel drive truck during good weather. Under poor weather conditions, a four-wheel drive vehicle is recommended.

**Restrictions:**

None known.

## RESORTS AND CAMPSITES

There are no resorts or campsites located on Chuyazega Lake.

## OTHER DEVELOPMENTS

None noted.

## OBSTRUCTIONS AND POLLUTIONS

None noted.

**LAKE: Chuyazega Lake**

## SPECIAL RESTRICTIONS

None known.

## AQUATIC PLANTS

The following aquatic plants were identified during the time of the survey:

sedge grasses
eel grass
whitestem pondweed *(Potamogeton praelongus)*

## WILDLIFE OBSERVATIONS

The following wildlife or signs were seen during the time of the survey:

moose tracks, beds and droppings
beaver
4 red-breasted mergansers
31 unidentified ducks
bald eagle
red-tail hawk

## MISCELLANEOUS COMMENTS

1) The marsh areas located along the north end of Chuyazega Lake are good places to land a helicopter.

2) Bathymetric map: The lake outline was drawn from an enlargement of air photo 30 BC 88036: No. 216, flown July 20, 1988.

**LAKE: Chuyazega Lake**

**LAKE DRAINAGE**

**General:**

Chuyazega Lake is fed by five inlets, one inlet in the north-northeast corner of the lake, and the other four along the south side of the lake. The outlet drains Chuyazega Lake to the north and runs for approximately 2.5 km to join with Chuyazega Creek. Chuyazega Creek runs west for approximately 3.2 km to join Reynolds Creek, which then flows for approximately 10.7 km to it's confluence with the Parsnip River.

**Major Systems:**

There are no major systems.

**Minor Systems:**

Inlet # 1 - Unnamed Creek

Inlet # 1 enters Chuyazega Lake in the north corner of the lake through the marsh in that area (Plate # 6). The creek has an average wetted width of 5.0 m and depth of 0.5 m. The banks are composed of common red sphagnum moss and sedge grasses with some willows growing along the banks back from the creek. The substrate is composed of silts and organics. Inlet # 1 had no fisheries potential during the survey period..

Inlet # 2 - Unnamed Creek

Inlet # 2 enters Chuyazega Lake in the middle of the south side of the lake (Plate # 7). Over the first 5.0 m upstream of the lake, the creek has an average wetted width of 1.5 m and depth of 0.2 m. The substrate is composed of silts and organics, and the banks are covered in common red sphagnum. Approximately 5 m upstream of the lake, there is a 0.35 m high beaver dam that had some water flowing over the top during the time of the survey. Upstream of the beaver dam, there is a small pool that is 3.0 m wide and 5.0 m long, with a depth of 0.3 m. The substrate is composed of silts and organics. Approximately 10 m upstream of Chuyazega Lake, the creek narrows to an average wetted width of 1.0 m and depth of 0.05 m. The substrate from this point on is composed of moss. Inlet # 2 had no fisheries potential during the survey period.

Inlet # 3 - Unnamed Creek

Inlet # 3 enters Chuyazega Lake in the middle of the south side of the lake (Plate # 8). From the mouth to a distance of 40 m upstream of the lake, the creek has an average wetted width of 5.5 m and depth of 0.4 m. The substrate is composed of silts and organics, and the banks are covered in common red sphagnum moss and sedge grasses

with some alders. There was no noticeable flow along this section of the creek during the survey. Approximately 40 m upstream of the lake, the channel is braided. There is a beaver dam on each channel located approximately 5 m upstream of the braid point, with a pond behind each of the dams. The beaver dams average 1.0 m in height (Plate # 9). The beaver dams likely prevent upstream fish passage as the only flow noticeable was through the dams. Inlet # 3 had no fisheries potential during the survey period.

Inlet # 4 - Unnamed Creek

Inlet # 4 enters Chuyazega Lake in the southwest corner of the lake (Plate # 10). The creek has an average wetted width of 1.0 m and depth of 0.05 m, and flows through a channel with banks of common red sphagnum moss, sedge grasses and alders. The substrate is composed of silts and organics. Inlet # 4 had no fisheries potential during the survey period.

Inlet # 5 - Unnamed Creek

Inlet # 5 enters Chuyazega Lake in the southwest corner of the lake (Plate # 11). From the mouth to 20 m upstream of the lake, the creek has an average wetted width of 4.0 m and depth of 0.6 m. The substrate is composed of silts and organics, and the banks are common red sphagnum moss and sedge grasses with some alders. Approximately 20 m upstream of Chuyazega Lake, there is a 1.4 m high beaver dam that likely prevents upstream fish passage as there was very little flow over the top of the dam and there was no plunge pool at the base of the dam (Plate # 12). The top of the beaver dam is overgrown with grasses and alders, and there is a beaver hut located on the dam. On the upstream side, there is a large pond, approximately 35 m long and 55 m wide, created by the beaver dam. Numerous small creeks, ranging from 0.5 m to 1.0 m wetted width, flow into the pond. These small creeks have silt and organics bottoms. Inlet # 5 had no fisheries potential during the survey period.

Outlet - Unnamed Creek

The outlet drains Chuyazega Lake from the north end of the lake through the large marsh of common red sphagnum moss and sedge grass located along that end of the lake (Plate # 13). The creek has a wetted width that varied from 8.0 m to 25.0 m, and an average depth of 1.5 m. The substrate is composed of silts and organics. Some large woody debris has accumulated in the channel. Approximately 100 m downstream of Chuyazega Lake, there is a beaver hut on the right side of the creek (looking upstream). The outlet had no fisheries potential during the survey period.

**LAKE: Chuyazega Lake**

## FISHERIES MANAGEMENT COMMENTS

Chuyazega Lake sustains a good population of rainbow trout that could support a moderately low use fishery. The rainbow trout in this lake appear to be very healthy - only three of the thirty rainbow trout sampled from the overnight experimental gill net set had worms in the stomach, and none had lice. The inlets and outlet creeks provided no immediate spawning habitat suitable for salmonids. However, there appeared to be excellent salmonid spawning habitat located downstream of Chuyazega Lake in Chuyazega Creek. A Forest Recreation Site could be located on the northwest side of the lake if road access was pushed in from the logging road located west-northwest of the lake.

## HISTORY OF PREVIOUS SURVEYS

**Lake Surveys:**

None known.

**Other Related Studies:**

None known.

**LAKE: Chuyazega Lake**

**WATER CHEMISTRY SUMMARY** **Limnology Station No. 1**

**Field Conditions:**

| | | | |
|---|---|---|---|
| Date: | October 17, 1996 | | |
| Time: | 1156 hrs | Air Temperature: | 6.5 °C |
| Wind Velocity: | 3 - 5 km/h | Wind Direction: | from the SSE |
| Cloud Cover: | 7 / 10 o.c. | Surface Conditions: | small waves |
| Secchi Disc: | 3.35 m | Water Colour: | clear |

**Method Used:**

| | |
|---|---|
| Dissolved Oxygen: | YSI Model 57 Oxygen / Temperature Meter |
| Water Temperature: | YSI Model 57 Oxygen / Temperature Meter |
| Air Temperature: | Hand-Held Alcohol Thermometer |
| pH (field): | Digital pH Pocket Tester |
| H2S (field): | Hach H2S Field Test Kit |
| Laboratory Used: | Pacific Environmental Science Center |
| Water Sampler: | Vertical Alpha Water Bottle (Vandorn) |
| Metal Sampler: | By Hand; Preserved With 2.0 mL Nitric Acid |
| Substrate Sampler: | Substrate Sample Not Taken |

**Water Sample Chemistry:** **SEAM Site** No.: E 223143

| | Sampling Depths | |
|---|---|---|
| | Surface (0.5 m) | Lower (2.5 m) |
| Alkalinity (lab) | mg/L | mg/L |
| Filterable Residue 105°C (lab) | mg/L | mg/L |
| H2S (field) | N/A | 0.0 mg / L |
| Nitrogen - Total (lab) | mg/L | mg/L |
| Non-Filterable Residue (lab) | mg/L | mg/L |
| pH (field) | 5.9 | 5.8 |
| pH (lab) | | |
| Phosphorus - Total Dissolved (lab) | mg/L | mg/L |
| Specific Conductance (lab) | µS / cm | µS / cm |

Bottom Depth: 3.35 m

Substrate Sample Depth: N/A

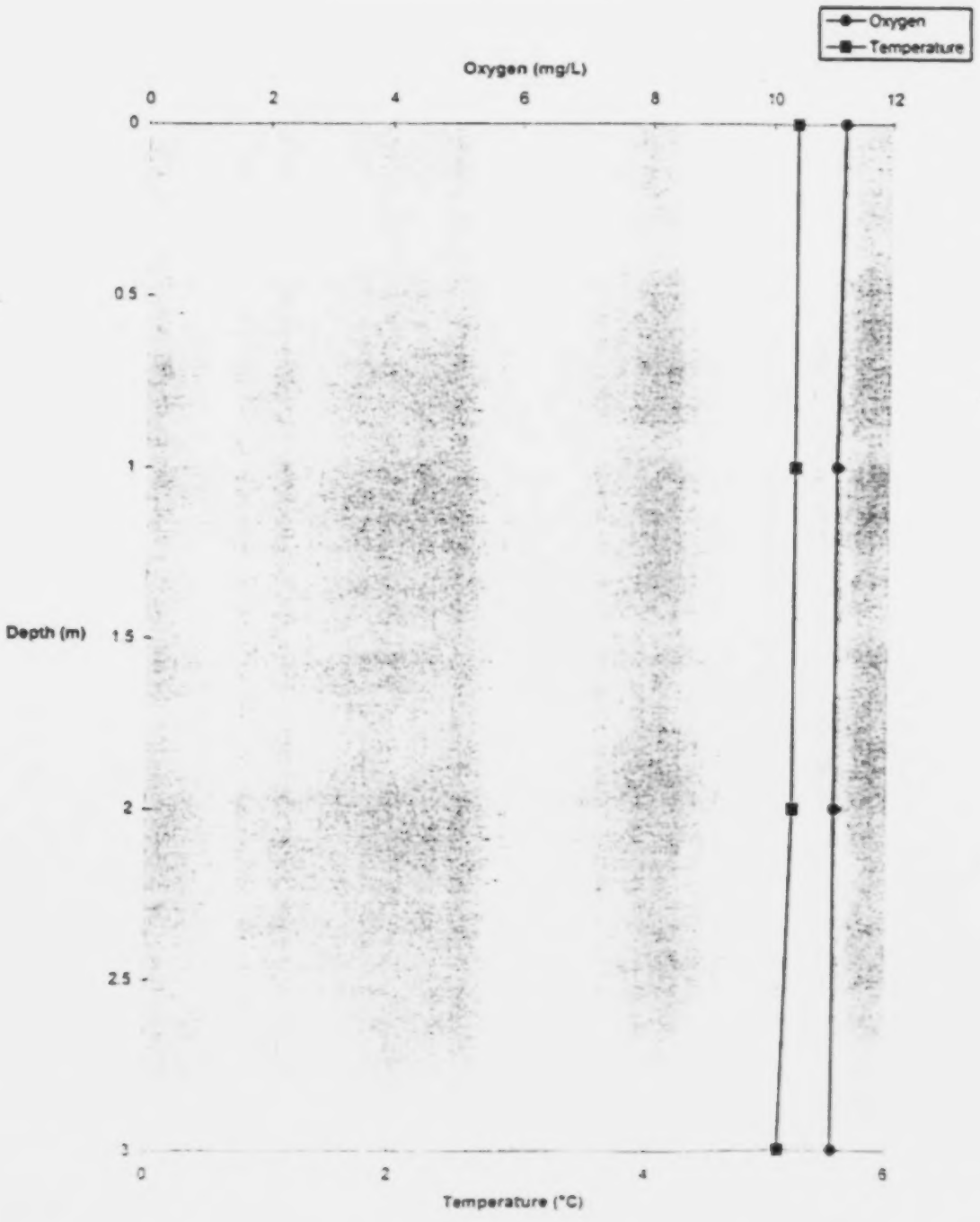
* additional analyzed parameters and results, including metals, are found in Appendix 1

**LAKE: Chuyazega Lake**

**FALL OXYGEN / TEMPERATURE DATA**

| DEPTH (m) | 02 (mg/L) | TEMPERATURE (°C) |
|---|---|---|
| Surface | 11.2 | 5.2 |
| 1.0 | 11.1 | 5.2 |
| 2.0 | 11.1 | 5.2 |
| 3.0 | 11.1 | 5.1 |
| 3.35 | Bottom | |

## FALL OXYGEN / TEMPERATURE PROFLE



**LAKE: Chuyazega Lake**

**NETTING RECORD**

Mesh Size Experimental Order: 25, 76, 51, 89, 38, 64 mm

NETTING SITE # 1

| | | | | |
|---|---|---|---|---|
| Type: | Sinking Monofilament Gill Net | | | |
| Date Set: | October 16, 1996 | | Time: | 1816 hrs |
| Date Lifted: | October 17, 1996 | | Time: | 0937 hrs |
| Net Dimensions: | Length: | 91.4 m | Depth: | 2.4 m |
| Shallow End Mesh Size: | 25 mm | | Depth: | 1.4 m |
| | | | Substrate: | organics and woody debris over gravels |
| Deep End Mesh Size: | 64 mm | | Depth: | 3.0 m |
| | | | Substrate: | silts over rock |

Comments: Net started approximately 6.0 m from the shore.

| Species | Netting Site No. 1 | Angled | Other | Total | Number Sampled | Number Preserved | Size Range (cm) |
|---|---|---|---|---|---|---|---|
| RB | 78 | 0 | 0 | 78 | 30 | 0 | 17.3-30.1 |
| CSU | 41 | 0 | | 41 | 0 | 1 | 11.2-43.6 |
| RSC | 9 | 0 | 0 | 9 | 0 | 1 | 6.2-10.0 |
| LKC | 7 | 0 | | 7 | 0 | 1 | 11.0-11.4 |

**Minnow Traps:**

**Bait:** Sardines

| Trap No. | Hours | Depth (m) | Substrate | Species | No. Caught | Size Range (cm) |
|---|---|---|---|---|---|---|
| 1 | 14:38 | 0.8 | silt / organics | empty | 0 | - |
| 2 | 14:37 | 0.9 | silt / organics | empty | 0 | - |
| 3 | 14:36 | 0.9 | silt / organics | empty | 0 | - |
| 4 | 14:35 | 1.0 | organics / woody debris over gravels | LKC<br>CSU | 2<br>2 | 10.9-12.0<br>6.5 |

**LAKE: Chuyazega Lake**

## INDIVIDUAL FISH DATA

**Date Captured:** October 17, 1996

**Method:** Sinking
Monofilament
Gillnet

M - Male
F - Female
? - Not Obvious

IMM - Immature
MG - Maturing
MT - Mature
GV - Gravid
SP - Spent
? - Not Obvious

EG - Egg
FR - Fin Ray
HD - Head
ML - Milt
OT - Otolith
SC - Scale

| Species | Fork Length (cm) | Weight (grams) | Sex | Gonadal Maturity | Sample Type | Age (yr) | Stomach Contents | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Plankton | Insects | Fish | Other | |
| RB | 28.4 | 245 | F | MG | SC | 2+ | Da | | | | |
| RB | 24.6 | 153 | M | IMM | SC | 2+ | Da | | | | |
| RB | 28.7 | 256 | M | MG | SC | 3+ | Da | | | | TW in St |
| RB | 27.3 | 240 | F | IMM | SC | 2+ | Da | | | | TW in St |
| RB | 29.2 | 273 | M | MG | SC | 3+ | Da | WB | | | |
| RB | 26.5 | 202 | M | IMM | SC | 3+ | Da | | | | |
| RB | 27.6 | 230 | M | IMM | SC | 3+ | | DN | | | |
| RB | 29.9 | 294 | M | MG | SC | 3+ | | CF | yes. | O | |
| RB | 25.5 | 175 | F | MG | SC | 2+ | Da | | | | |
| RB | 19.5 | 82 | F | IMM | SC | 2+ | Da | | | | |
| RB | 29.7 | 248 | M | IMM | SC | 3+ | | | | empty | |
| RB | 27.6 | 253 | M | MG | SC | 3+ | Da | | | | |
| RB | 20.1 | 90 | F | IMM | SC | 1+ | Da | | | | |
| RB | 28.8 | 251 | M | MG | SC | 2+ | Da | | yes | | |
| RB | 28.0 | 240 | F | MG | SC | 3+ | Da | CF | | | |
| RB | 22.5 | 128 | M | IMM | SC | 2+ | Da | | | | TW in St |
| RB | 23.3 | 142 | F | MG | SC | 3+ | Da | | | | |
| RB | 29.7 | 257 | M | MG | SC | 3+ | Da | | | | |
| RB | 26.2 | 206 | F | IMM | SC | 2+ | Da | | | | |
| RB | 24.1 | 161 | F | IMM | SC | 2+ | Da | | | | |
| RB | 25.8 | 205 | F | IMM | SC | 2+ | Da | | | | |
| RB | 29.8 | 290 | F | MG | SC | 2+ | | | | empty | |
| RB | 26.6 | 216 | F | MG | SC | 2+ | Da | | | | |
| RB | 28.5 | 241 | M | IMM | SC | 3+ | | CF | | | |
| RB | 30.1 | 308 | M | MG | SC | 3+ | Ch | | | | |
| RB | 26.6 | 214 | M | MG | SC | 3+ | Da | | | | |
| RB | 22.9 | 137 | F | IMM | SC | 1+ | Da | | | | |
| RB | 28.1 | 281 | F | MG | SC | 3+ | Da | | | | |
| RB | 30.1 | 309 | M | MG | SC | 3+ | Da | | | | |
| RB | 17.3 | 54 | M | IMM | SC | 2+ | | | | empty | |

B - Beetle
C - Clams
CF - Caddis Fly
Ch - Chaoborus
Cr - Chironomids
Da - *Daphnia*
DN - Dragonfly Nymph
G - *Gammerus*
L - Leech
Li - Lice
O - Organics
S - Snails
St - Stomach
TW - Tape Worm
WB - Water Boatman
WF - Whole Fish

LOCATION OF INVENTORY SITES
Benchmark
Stream Number And Direction Of Flow
NS
Net Set Number And Site
LS
Limnostation Number And Site
Plate Number And Direction Of Photograph
15
7
4
LS
3
2
NS
12
11
9
8
5
4
3
2

**LAKE: Chuyazega Lake**

**PHOTOGRAPH DIRECTORY**

| Plate | Roll : Number | Description |
|---|---|---|
| 1 | 38:18 | Aerial view of Chuyazega Lake looking north. Note Chuyazega Creek in the background. |
| 2 | 38: 2 - 4 | Panoramic view of Chuyazega Lake looking south from the center of the lake. |
| 3 | 39: 22 - 24 | Panoramic view of Chuyazega Lake looking north from the center of the lake. |
| 4 | 39: 21 | View of the benchmark located 2.0 m above present water level in a 35 cm diameter spruce tree that is 7.0 m from the present water's edge and located on the northeast shore approximately 120 m south of Inlet # 1. |
| 5 | 38: 14 | View of beaver hut # 1, located on the middle of the east side of Chuyazega Lake. |
| 6 | 38: 15 | View of the mouth of Inlet # 1 where it enters Chuyazega Lake in the north end of the lake. |
| 7 | 38: 13 | View of the mouth of Inlet # 2 where it enters Chuyazega Lake in the middle of the south side of the lake. |
| 8 | 38: 12 | View of the mouth of Inlet # 3 where it enters Chuyazega Lake in the middle of the south side of the lake. |
| 9 | 38: 11 | Upstream view of a typical beaver dam on one of the braids of Inlet # 3, located approximately 45 m upstream of Chuyazega Lake. Dam height is 1.0 m. |
| 10 | 38:10 | View of the mouth of Inlet # 4 where it enters Chuyazega Lake in the southwest corner of the lake. |
| 11 | 38: 7 | View of the mouth of Inlet # 5 where it enters Chuyazega Lake in the southwest corner of the lake. |
| 12 | 38: 9 | Upstream view of the beaver dam on Inlet # 5, located approximately 20 m upstream of Chuyazega Lake. Dam height is 1.4 m. |
| 13 | 38: 5 | View of the mouth of the outlet where it drains Chuyazega Lake from the north end of the lake. |

**LAKE: Chuyazega Lake**

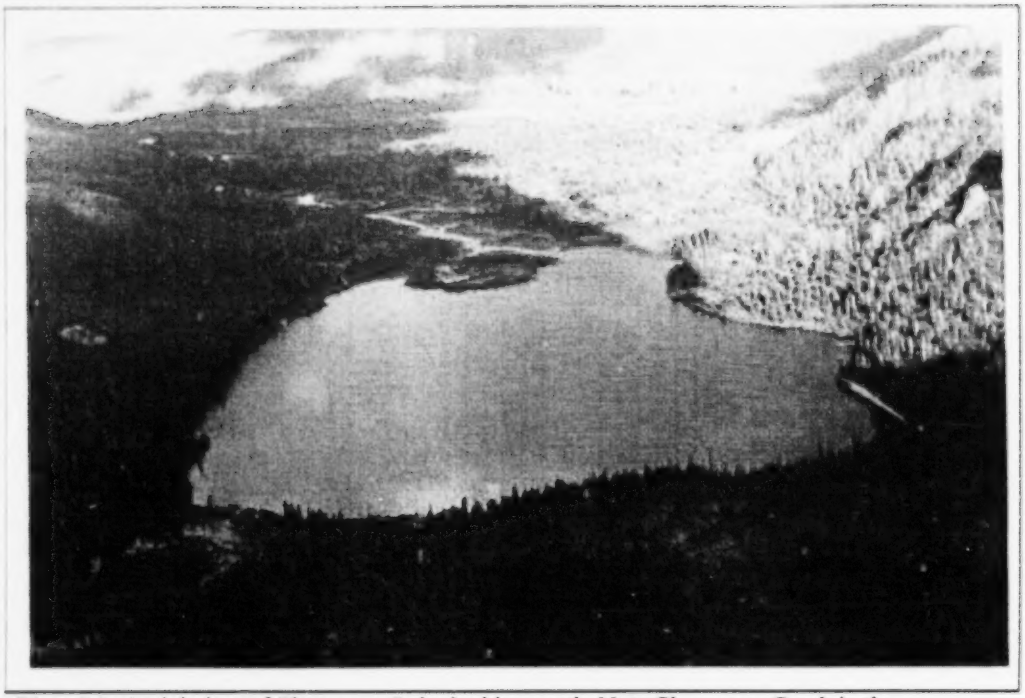


**Plate # 1:** Aerial view of Chuyazega Lake looking north. Note Chuyazega Creek in the background.

LAKE: Chuyazega Lake

**Plate # 2:** Panoramic view of Chuyazega Lake looking south from the center of the lake.

LAKE: Chuyazega Lake

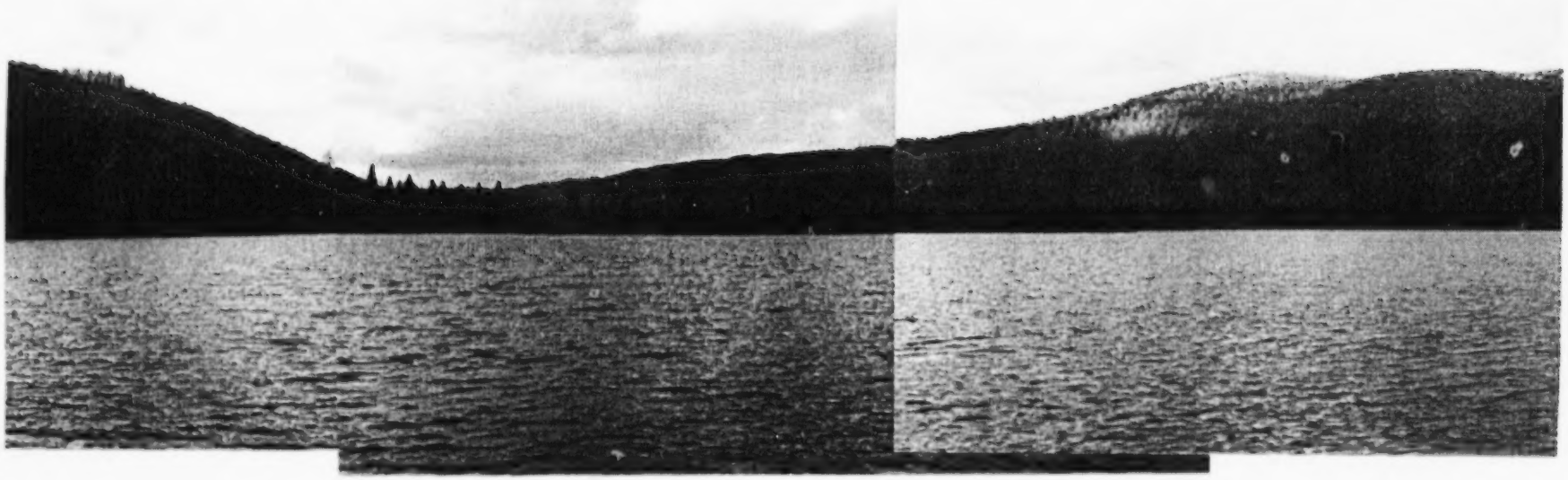


**Plate # 3:** Panoramic view of Chuyazega Lake looking north from the center of the lake.

**LAKE: Chuyazega Lake**

**Plate # 4:** View of the benchmark located 2.0 in above present water level in a 35 cm diameter spruce tree that is 7.0 m from the present water's edge and located on the northeast shore approximately 120 m south of Inlet # 1.

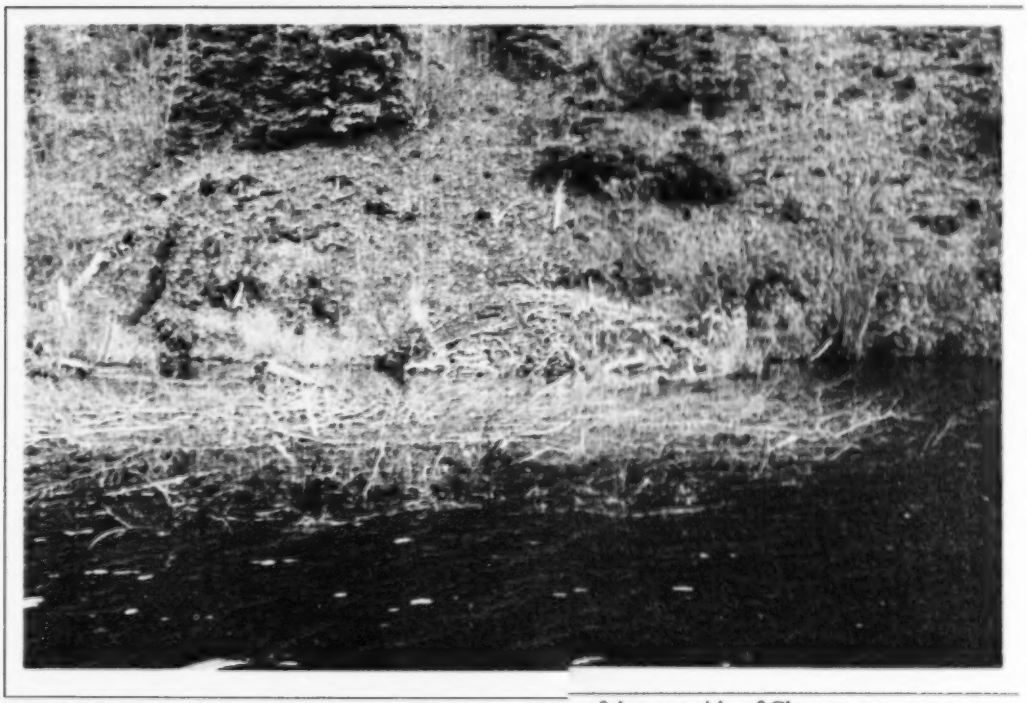


**Plate # 5:** View of beaver hut # 1, located on the middle of the east side of Chuyazega Lake.

**LAKE: Chuyazega Lake**

**Plate # 6:** View of the mouth of Inlet # 1 where it enters Chuyazega Lake in the north end of the lake.

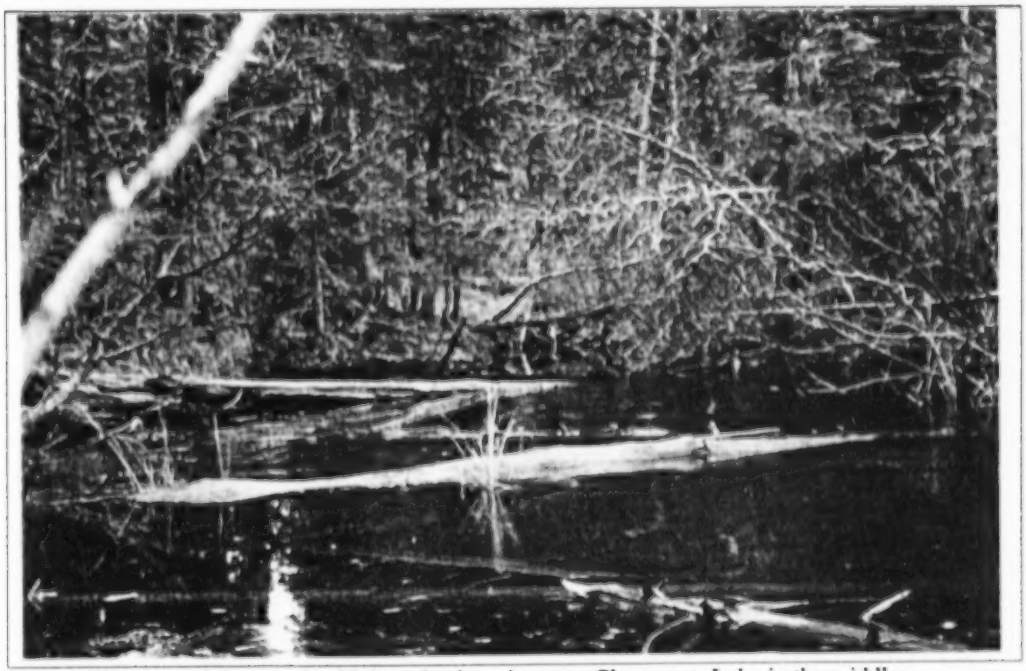


**Plate** # 7: View of the mouth of Inlet # 2 where it enters Chuyazega Lake in the middle of the south side of the lake.

**Plate # 8:** View of the mouth of Inlet # 3 where it enters Chuyazega Lake in the middle of the south side of the lake.

**Plate # 9:** Upstream view of a typical beaver dam on one of the braids of Inlet # 3, located approximately 45 m upstream of Chuyazega Lake. Dam height is 1.0 m.

**Plate # 10:** View of the mouth of Inlet # 4 where it enters Chuyazega Lake in the southwest corner of the lake.

**Plate # 11:** View of the mouth of Inlet # where it enters Chuyazega Lake in the southwest corner of the lake.

LAKE: Chuyazega Lake

**Plate # 12:** Upstream view of the beaver dam on Inlet # 5, located approximately 20 m upstream of Chuyazega Lake. Dam height is 1.4 m.

**Plate # 13:** View of the mouth of the outlet where it drains Chuyazega Lake from the north end of the lake.

# Appendix A

## LABORATORY REPORT

## Water Chemistry Analysis

RESULTS FOR CHUVAZEGA LAKE SAMPLES

| Parameter Analyzed | | Units | 965874-001 | 965874-002 |
|---|---|---|---|---|
| ALINITY | | mg/l | 25.9 | 25.4 |
| NDUCTIVITY | | uS/cm | 65 | 66 |
| METALS/TOTAL (WATER-ICP) | AG | mg/l | <.01 | - |
| | AL | mg/l | <.06 | - |
| | AS | mg/l | <.06 | - |
| | B | mg/l | <.01 | - |
| | BA | mg/l | .004 | - |
| | BE | mg/l | <.001 | - |
| | CA | mg/l | 10 | - |
| | CD | mg/l | <.006 | - |
| | CO | mg/l | <.006 | - |
| | CR | mg/l | <.006 | - |
| | CU | mg/l | <.006 | - |
| | FE | mg/l | .083 | - |
| | K | mg/l | .2 | - |
| | MG | mg/l | 1 | - |
| | MN | mg/l | .003 | - |
| | MO | mg/l | <.01 | - |
| | NA | mg/l | .7 | - |
| | NI | mg/l | <.02 | - |
| | P | mg/l | <.1 | - |
| | PB | mg/l | <.06 | - |
| | SB | mg/l | <.06 | - |
| | SE | mg/l | <.06 | - |
| | SI | mg/l | .32 | - |
| | SN | mg/l | <.06 | - |
| | SR | mg/l | .044 | - |
| | TI | mg/l | <.002 | - |
| | V | mg/l | <.01 | - |
| | ZN | mg/l | .007 | - |
| NITROGEN/AMMONIA | | mg/l | .02 | .015 |
| /NITRITE | | mg/l | <.002 | <.002 |
| /NITRITE+NITRATE | | mg/l | .004 | .004 |
| /TOTAL | | mg/l | .23 | .2 |
| PH | | Rel.U. | 7.62 | 7.62 |
| PHOSPHORUS/O-PO4 | | mg/l | <.001 | <.001 |
| /TOTAL | | mg/l | .005 | .006 |
| /TOTAL DISSOLVED | | mg/l | <.002 | <.002 |
| RESIDUE/FILTERABLE | | mg/l | 30 | 30 |
| /NON-FILTERABLE | | mg/l | <5 | <5 |
| BC CLIENT STUDY CODE | | | 20 | 20 |
| SAMPLING AGENCY | | EMScode | 91 | 91 |
| SITE IDENTIFIER/NUMBER | | | E223143 | E223143 |
| COLLECTION START DATE | | y/m/d | 96/10/17 | 96/10/17 |
| UPPER DEPTH | | metres | 0.5 | 2.5 |
| TEMPERATURE ON ARRIVAL | | deg.C | 3 | 3 |

## Appendix B

## FISH SCALE ANALYSIS

**Age Determination Completed By:**

**A.M.C. Technical Services Ltd.**
**Melinda M. Hirst**
**6809 Phillip Road.**
**Lantzville, B.C.**
**VOR 2HO**

SEE ORIGINAL COPY

FOR SCALE SAMPLE READINGS

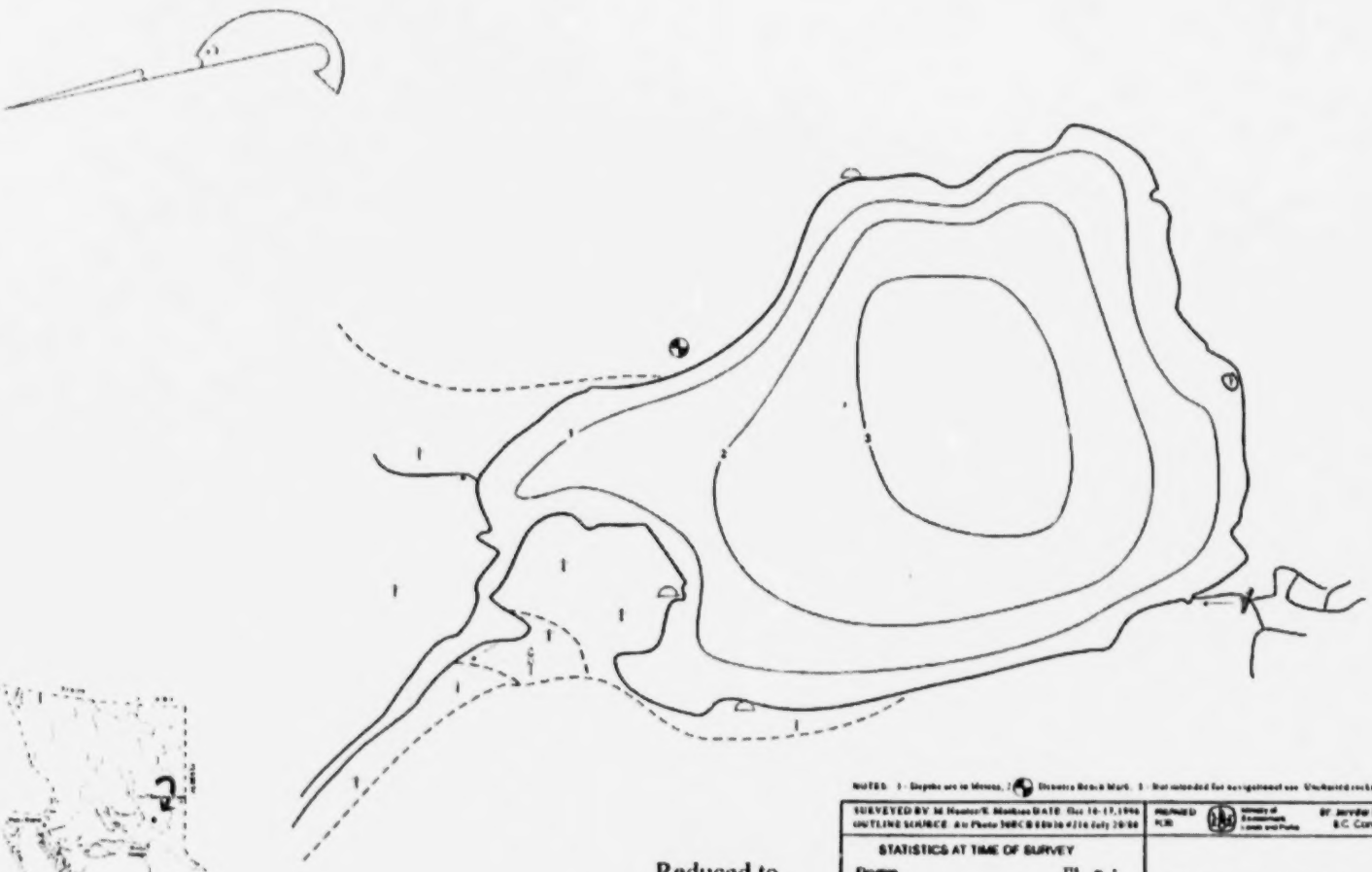
ORIGINAL COPY IS HELD BY

B. C. MINISTRY OF ENVIRONMENT, LANDS AND PARKS

PRINCE GEORGE, B. C.

## Appendix C

## BATHYMETRIC MAP



Reduced to
34%
of Original Size

| STATISTICS AT TIME OF SURVEY | | |
|---|---|---|
| Elevation | 775 | m. |
| Surface Area | 521110 | sq.m. |
| Area above 6m. contour | 521110 | sq.m. |
| Volume | 140665 | cu.m. |
| Mean Depth | 0.8 | m. |
| Maximum Depth | 2.6 | m. |
| Perimeter, Main Shore | 2868 | m. |
| Perimeter, Islands | 53 | m. |
| Bench Mark | 2.0 | m. |

# *Chuyazega Lake*